

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference PHNL030981WO	FOR FURTHER ACTION		See item 4 below
International application No. PCT/IB2004/051122	International filing date (<i>day/month/year</i>) 05 July 2004 (05.07.2004)	Priority date (<i>day/month/year</i>) 06 August 2003 (06.08.2003)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant KONINKLIJKE PHILIPS ELECTRONICS N.V.			

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|---------------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input checked="" type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

Date of issuance of this report 06 February 2006 (06.02.2006)

Authorized officer

Idhir Britel

Telephone No. +41 22 338 70 60

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland

Facsimile No. +41 22 740 14 35

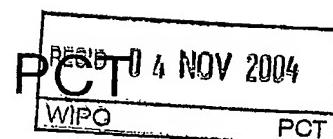
Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220



WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

		Date of mailing (day/month/year) see form PCT/ISA/210 (second sheet)
Applicant's or agent's file reference see form PCT/ISA/220		FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/IB2004/051122	International filing date (day/month/year) 05.07.2004	Priority date (day/month/year) 06.08.2003
International Patent Classification (IPC) or both national classification and IPC G02F1/1333, G02F1/1339, G02F1/1334		
Applicant KONINKLIJKE PHILIPS ELECTRONICS N.V.		

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Frank, W
Telephone No. +49 89 2399-7685



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/051122

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material:
 - in written format
 - in computer readable form
 - c. time of filing/furnishing:
 - contained in the international application as filed.
 - filed together with the international application in computer readable form.
 - furnished subsequently to this Authority for the purposes of search.
3. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/IB2004/051122

Box No. II Priority

1. The following document has not been furnished:

- copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
 translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-13
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-13
Industrial applicability (IA)	Yes: Claims	1-13
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The present application does not meet the requirements of Art. 33(1) PCT, the subject-matter of claims 1-13 lacking an inventive step (Art. 33(3) PCT).
- 1.0 The documents cited in the International Search Report are referred to as D1-D6 in this opinion.
- 1.1 Any of the documents D1-D4 discloses (see the respective passages cited in the ISR) a photo-polymeric stratified-phase-separated composite comprising a film of a liquid crystal, a layer of a polymerised material covering the film of liquid, and supporting members formed of the polymerised material through the film of liquid and extending from the layer of polymerised material through the film of liquid crystal, the photo-polymeric stratified-phase-separated composite being provided, with its film of liquid side, on the surface of a substrate, said surface being provided with an alignment layer.
- 1.2 The control of the location of polymeric supporting members is a generally known problem in the art of liquid crystal displays manufactured by phase separation between a polymer and a liquid crystal materials, so that the skilled person would routinely consider alternative solutions to this problem to the ones mentioned in D1-D4.
- 1.3 D5 discloses (see Example 10 with Fig. 37) a liquid crystal display comprising pockets of liquid crystal material (88) separated by polymeric walls (87) which have been formed on top of thin film patterns (89,90) consisting of a polymerisation initiator. The display of D5 is manufactured by phase separation of a liquid crystal-polymer mixture which is induced by photo-polymerisation using UV radiation. It would be obvious to the skilled person to apply the teaching of D5 regarding control of the location of the polymer walls by means of the thin films (89, 90) to the photo-polymeric stratified-phase-separated composites of any of D1-D4, thereby arriving at the subject-matter of claims 1-4 and 6-12.
- 1.4 With respect to claim 5, the choice of a polymerisation inhibitor instead of a polymerisation initiator for controlling the rate of polymerisation is considered as

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

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an obvious alternative.

- 1.5 Regarding claim 13, it is pointed out that D5 (see p. 15, l. 12-19) mentions that the locations of the polymer walls will be determined by the thin film patterns even if thermal polymerisation is used, a polymerisation method which does not allow for controlling the locations where polymerisation is induced. Hence, the skilled person would conclude that in the case of photo-polymerisation, a patterned exposure through a photomask is not necessary for reliably controlling the locations of the polymer walls, and therefore also consider photo-polymerisation by a flood exposure, so as to simplify the manufacturing process. Hence, the subject-matter of claim 13 is also obvious.
 - 1.6 The document D6 also discloses a method for controlling the location of polymer walls during phase separation of a liquid crystal-polymer mixture. It discloses (see the passages cited in the ISR) that the free energy of the surface of a substrate may be modified by a thin film pattern so as to control said locations. In particular, D6 aims at avoiding using photomasks during photopolymerisation (see e.g. p. 4, l. 48-50 and p. 21, l. 39-41). The subject-matter of claims 1, 2, 4, and 6-13 is therefore also obvious in view of a combination of either of D1-D4 with D6.
2. The following minor deficiencies are noted.
 - 2.1 The relevant teaching of the cited documents should be acknowledged in the description (R. 5.1(a)(ii) PCT) and the independent claims should be formulated in two-part form based on the teaching of either of D1-D4 (R. 6.3(b) PCT).
 - 2.2 Reference signs to the drawings should be added to all claims (R. 6.2(b) PCT).
 3. The subject-matter of the claims, relating to liquid crystal displays and their manufacturing, is obviously industrially applicable.